

LIST OF CLAIMS / AMENDMENTS

Please cancel claims 2, 5, 11, 15, 23, 25, 37, 40, and 45 without prejudice.

Claim 28 was previously canceled.

Please amend claims 1, 3-4, 6-10, 12-14, 16-22, 24, 26-27, 29-35, 39, 41-43, 46, and 50 as shown herein.

Claims 1, 3-4, 6-10, 12-14, 16-22, 24, 26-27, 29-36, 38-39, 41-44, and 46-58 are pending and are listed following:

1 **1. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement a [[A]] visual
3 query system, comprising:

4 query criteria of a query expression displayed as shapes that have a
5 semantic relationship which represents logical associations between the query
6 criteria, where a first shape of query criteria is displayed proximate a second shape
7 of query criteria within a visual query definition that is bordered to define a
8 Boolean association between the first shape and the second shape within the visual
9 query definition;

10 ~~a user interface configured to display a query result of the query expression;~~
11 **and**

12 a query statement generator configured to:
13 determine ~~Boolean associations~~ the Boolean association
14 corresponding to the semantic relationship of the shapes;
15 generate a SQL query statement for each shape of query
16 criteria;
17 combine the SQL query statements according to the Boolean
18 ~~associations~~ association to generate the query expression; ~~and~~
19 generate ~~the a~~ a query result of the combined SQL query
20 statements that form the query expression; and
21 a user interface configured to display the query result of the query
22 expression.

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24 **2. (canceled)**

1 **3. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] A visual
3 query system as recited in claim 1, wherein [[a]] the first shape of query criteria is
4 displayed proximate [[a]] the second shape of query criteria such that the first
5 shape has an AND Boolean association with the second shape.

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7 **4. (currently amended)** Computer-readable storage media
8 encoded with computer-executable instructions that implement the [[A]] visual
9 query system as recited in claim 1, wherein [[a]] the first shape of query criteria is
10 displayed proximate [[a]] the second shape of query criteria within [[a]] the visual
11 query definition such that the first shape has an AND Boolean association with the
12 second shape within the visual query definition.

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14 **5. (canceled)**

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16 **6. (currently amended)** Computer-readable storage media
17 encoded with computer-executable instructions that implement the [[A]] visual
18 query system as recited in claim 1, wherein a first set of query criteria are
19 displayed within ~~a first~~ the visual query definition, and wherein a second set of
20 query criteria are displayed within ~~a second~~ an additional visual query definition,
21 the first set of query criteria including the second set of query criteria such that the
22 ~~second~~ additional visual query definition is displayed within the ~~first~~ visual query
23 definition.
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1 7. **(currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 1, wherein:

4 a first set of query criteria are displayed within ~~a first~~ the visual query
5 definition on the user interface;

6 a second set of query criteria are displayed on the user interface within a
7 ~~second~~ an additional visual query definition, the first set of query criteria including
8 the second set of query criteria such that the ~~second~~ additional visual query
9 definition is displayed within the ~~first~~ visual query definition; and

10 the query statement generator is further configured to generate a first query
11 result of the first set of query criteria and generate a second query result of the
12 second set of query criteria such that the first query result and the second query
13 result can be displayed as multiple query results.

1 **8. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 1, wherein an additional shape of query criteria is
4 configured for display with the query criteria, and wherein the query statement
5 generator is further configured to:

6 determine an additional Boolean association corresponding to the semantic
7 relationship of the additional shape of query criteria;

8 generate an additional SQL query statement for the additional shape of
9 query criteria;

10 combine the SQL query statements and the additional SQL query statement
11 according to the additional Boolean association; and

12 update the query result of the combined SQL query statements and the
13 additional SQL query statement.

14
15 **9. (currently amended)** Computer-readable storage media
16 encoded with computer-executable instructions that implement the [[A]] visual
17 query system as recited in claim 1, further comprising data tables that maintain
18 data criteria, and wherein the query criteria is displayed in user-identifiable terms
19 as metadata that correlates to the data criteria maintained in the data tables.

1 **10. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 1, wherein the user interface is further configured
4 to:

5 display criteria selections that include the query criteria within a criteria
6 selection display on the user interface;

7 display the shapes of query criteria within [[a]] the visual query definition
8 on the user interface; and

9 display the query result within the visual query definition on the user
10 interface.

11
12 **11. (canceled)**

1 **12. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement a [[A]] visual
3 query system, comprising:

4 a visual query definition displayed to associate query criteria of a query
5 expression, the query criteria displayed as shapes within the visual query
6 definition such that proximate positions of the query criteria define query criteria
7 associations;

8 ~~a user interface configured to display a query result of the query expression;~~
9 **and**

10 a query statement generator configured to:
11 determine a query statement association for each display
12 relationship of the query criteria;
13 generate a SQL query statement for each of the query criteria;
14 combine the SQL query statements according to the query
15 statement associations to generate the query expression; and
16 generate ~~the~~ a query result of the combined SQL query
17 statements that form the query expression for display in the visual
18 query definition; and

19 a user interface configured to display the query result of the query
20 expression within the visual query definition on the user interface.

1 **13. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 12, wherein the visual query definition is further
4 displayed to associate the query criteria without logic operators connected between
5 the query criteria.

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7 **14. (currently amended)** Computer-readable storage media
8 encoded with computer-executable instructions that implement the [[A]] visual
9 query system as recited in claim 12, wherein the query statement generator is
10 further configured to determine the query statement associations as a Boolean
11 association for each display relationship of the query criteria.

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13 **15. (canceled)**

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15 **16. (currently amended)** Computer-readable storage media
16 encoded with computer-executable instructions that implement the [[A]] visual
17 query system as recited in claim 12, wherein a first query criteria is displayed
18 proximate a second query criteria within the visual query definition such that the
19 first query criteria has an AND query statement association with the second query
20 criteria.

1 **17. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 12, wherein a first query criteria is displayed
4 proximate a second query criteria within the visual query definition such that the
5 first query criteria has an OR query statement association with the second query
6 criteria.

7
8 **18. (currently amended)** Computer-readable storage media
9 encoded with computer-executable instructions that implement the [[A]] visual
10 query system as recited in claim 12, wherein the visual query definition is
11 bordered to define a query statement association between a first query criteria
12 displayed proximate a second query criteria within the visual query definition.

13
14 **19. (currently amended)** Computer-readable storage media
15 encoded with computer-executable instructions that implement the [[A]] visual
16 query system as recited in claim 12, further comprising a second visual query
17 definition displayed to associate additional query criteria of the query expression,
18 wherein:

19 the visual query definition includes the second visual query definition ~~such~~
20 ~~that the second visual query definition is~~ displayed within the visual query
21 definition; and

22 the query statement generator is further configured to generate a second
23 query result for the second visual query definition such that the query result and
24 the second query result can be displayed as multiple query results.

1 **20. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 12, wherein the visual query definition is further
4 displayed to associate additional query criteria, and wherein the query statement
5 generator is further configured to:

6 determine an additional query statement association for a display
7 relationship of the additional query criteria;

8 generate an additional SQL query statement for the additional query
9 criteria;

10 combine the SQL query statements and the additional SQL query statement
11 according to the additional query statement association; and

12 update the query result of the combined SQL query statements and the
13 additional SQL query statements.

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15 **21. (currently amended)** Computer-readable storage media
16 encoded with computer-executable instructions that implement the [[A]] visual
17 query system as recited in claim 12, wherein the user interface is further
18 configured to:

19 display criteria selections that include the query criteria within a criteria
20 selection display on the user interface; and

21 display the query criteria within the visual query definition on the user
22 interface; and

23 ~~display the query result within the visual query definition on the user~~
24 ~~interface.~~

1 **22. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that implement the [[A]] visual
3 query system as recited in claim 12, further comprising data tables that maintain
4 data criteria, and wherein the query criteria is displayed in user-identifiable terms
5 as metadata that correlates to the data criteria maintained in the data tables.

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7 **23. (canceled)**

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9 **24. (currently amended)** Computer-readable storage media
10 encoded with computer-executable instructions that, when executed, display a
11 [[A]] user interface, comprising:

12 a criteria selection display of query criteria;

13 a visual query definition displayed to associate the query criteria of a query
14 expression based on proximate positions of the query criteria in the visual query
15 definition and without logic operators connected between the query criteria, each
16 of the query criteria represented by a shape displayed within the visual query
17 definition;

18 a display attribute of the visual query definition that defines a Boolean
19 association of the query criteria represented by the shapes displayed within the
20 visual query definition; and

21 a query result displayed within the visual query definition, the query result
22 generated from a combination of one or more query statements that are combined
23 to generate the query expression, the one or more query statements representing a
24 shape of query criteria and the association of the query criteria.

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25. (canceled)

26. (currently amended) Computer-readable storage media encoded with computer-executable instructions that, when executed, display the [[A]] user interface as recited in claim 24, wherein the query criteria are drag-and-drop query criteria from the criteria selection display to the visual query definition.

27. (currently amended) Computer-readable storage media encoded with computer-executable instructions that, when executed, display the [[A]] user interface as recited in claim 24, wherein the visual query definition can be copied to create a second visual query definition for display on the user interface, and wherein the second visual query definition is redefined in an event that the visual query definition is redefined.

28. (canceled)

29. (currently amended) Computer-readable storage media encoded with computer-executable instructions that, when executed, display the [[A]] user interface as recited in claim 24, wherein a color of the visual query definition defines the Boolean association of the query criteria represented by the shapes displayed within the visual query definition.

1 **30. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that, when executed, display the
3 [[A]] user interface as recited in claim 24, wherein a border of the visual query
4 definition defines the Boolean association of the query criteria represented by the
5 shapes displayed within the visual query definition.

6
7 **31. (currently amended)** Computer-readable storage media
8 encoded with computer-executable instructions that, when executed, display the
9 [[A]] user interface as recited in claim 24, wherein the one or more query
10 statements are SQL query statements, and wherein the query result is generated
11 from the combination of the one or more SQL query statements.

12
13 **32. (currently amended)** Computer-readable storage media
14 encoded with computer-executable instructions that, when executed, display the
15 [[A]] user interface as recited in claim 24, wherein a first shape of query criteria is
16 displayed proximate a second shape of query criteria within the visual query
17 definition such that the first shape has an AND query statement association with
18 the second shape.

1 **33. (currently amended)** Computer-readable storage media
2 encoded with computer-executable instructions that, when executed, display the
3 [[A]] user interface as recited in claim 24, wherein a first shape of query criteria is
4 displayed proximate a second shape of query criteria within the visual query
5 definition such that the first shape has an OR query statement association with the
6 second shape.

7
8 **34. (currently amended)** Computer-readable storage media
9 encoded with computer-executable instructions that, when executed, display the
10 [[A]] user interface as recited in claim 24, further comprising additional query
11 criteria not associated with the visual query definition and displayed to indicate the
12 non-association.

13
14 **35. (currently amended)** A method, comprising:
15 displaying query criteria of a query expression as shapes on a user interface,
16 the shapes having a semantic relationship which represents logical associations
17 between the query criteria, the query criteria further displayed as a first set of
18 query criteria within a first visual query definition, and as a second set of query
19 criteria within a second visual query definition such that the first set of query
20 criteria includes the second set of query criteria;

21 determining a query statement association for each display relationship of
22 the shapes of query criteria;

23 generating a SQL query statement for each shape of query criteria;

1 combining the SQL query statements according to the query statement
2 associations to generate the query expression; and
3 displaying a query result of the query expression on the user interface.
4

5 **36. (original)** A method as recited in claim 35, wherein determining
6 the query statement associations includes determining a Boolean association
7 corresponding to each display relationship of the shapes of query criteria.
8

9 **37. (canceled)**
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11 **38. (original)** A method as recited in claim 35, further comprising
12 displaying criteria selections that include the query criteria in a criteria selection
13 display on the user interface.
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15 **39. (currently amended)** A method as recited in claim 35, further
16 comprising generating the query result of the combined SQL query statements that
17 form the query expression.
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19 **40. (canceled)**
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1 **41. (currently amended)** A method as recited in claim 35, wherein
2 displaying the query criteria as shapes includes displaying a first shape of query
3 criteria proximate a second shape of query criteria within [[a]] the first visual
4 query definition such that the first shape has a Boolean association with the second
5 shape.

6
7 **42. (currently amended)** A method as recited in claim 35, wherein
8 displaying the query criteria as shapes includes displaying a first shape of query
9 criteria proximate a second shape of query criteria within [[a]] the first visual
10 query definition such that the first shape has an AND Boolean association with the
11 second shape.

12
13 **43. (currently amended)** A method as recited in claim 35, wherein
14 displaying the query criteria as shapes includes displaying a first shape of query
15 criteria proximate a second shape of query criteria within [[a]] the first visual
16 query definition that is bordered to define an OR Boolean association between the
17 first shape and the second shape.

18
19 **44. (original)** A method as recited in claim 35, wherein displaying
20 the query criteria includes displaying the query criteria in user-identifiable terms
21 as metadata that correlates to data criteria maintained in data tables.

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23 **45. (canceled)**
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1 **46. (currently amended)** A method as recited in claim 35, further
2 comprising:

3 adding additional query criteria as a shape on the user interface;
4 determining an additional query statement association for a display
5 relationship of the additional shape of query criteria;
6 generating an additional SQL query statement corresponding to the
7 additional shape of query criteria;
8 combining the SQL query statements and the additional SQL query
9 statement according to the additional query statement association; and
10 updating the query result displayed on the user interface to include the
11 additional query criteria.

12
13 **47. (original)** A method as recited in claim 46, wherein adding the
14 additional query criteria includes dragging-and-dropping the additional query
15 criteria on the user interface.

16
17 **48. (previously presented)** A method as recited in claim 35, further
18 comprising generating an audible indication corresponding to at least one of a
19 display of the query result on the user interface or an update of the query result
20 displayed on the user interface.

21
22 **49. (previously presented)** One or more computer readable storage
23 media comprising computer executable instructions that, when executed, direct a
24 computing device to perform the method of claim 35.

1 **50. (currently amended)** One or more computer readable storage
2 media comprising computer executable instructions that, when executed, direct a
3 computing device to:

4 display a visual query definition to associate query criteria of a query
5 expression, the query criteria displayed as shapes having display relationships
6 within the visual query definition;

7 determine a query statement association for each shape of query criteria
8 according to the display relationships;

9 generate a query statement for each shape of query criteria;

10 combine the query statements according to the query statement associations
11 to generate the query expression; ~~and~~

12 generate a query result of the combined query statements that form the
13 query expression; and for

14 display the query result in the visual query definition on a user interface.

15
16 **51. (previously presented)** One or more computer readable storage
17 media as recited in claim 50, further comprising computer executable instructions
18 that, when executed, direct the computing device to determine the query statement
19 association for each shape of query criteria as a Boolean association.

20
21 **52. (previously presented)** One or more computer readable storage
22 media as recited in claim 50, further comprising computer executable instructions
23 that, when executed, direct the computing device to generate the query statement
24 for each shape of query criteria as a SQL query statement.

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2 **53. (previously presented)** One or more computer readable storage
3 media as recited in claim 50, further comprising computer executable instructions
4 that, when executed, direct the computing device to display criteria selections that
5 can be added to the visual query definition.

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7 **54. (previously presented)** One or more computer readable storage
8 media as recited in claim 50, further comprising computer executable instructions
9 that, when executed, direct the computing device to display a first shape of query
10 criteria proximate a second shape of query criteria within the visual query
11 definition such that the first shape has a Boolean association with the second
12 shape.

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14 **55. (previously presented)** One or more computer readable storage
15 media as recited in claim 50, further comprising computer executable instructions
16 that, when executed, direct the computing device to display a first shape of query
17 criteria proximate a second shape of query criteria within the visual query
18 definition such that the first shape has an AND Boolean association with the
19 second shape.
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1 **56. (previously presented)** One or more computer readable storage
2 media as recited in claim 50, further comprising computer executable instructions
3 that, when executed, direct the computing device to display a first shape of query
4 criteria proximate a second shape of query criteria within the visual query
5 definition that is bordered to define an OR Boolean association between the first
6 shape and the second shape.

7
8 **57. (previously presented)** One or more computer readable storage
9 media as recited in claim 50, further comprising computer executable instructions
10 that, when executed, direct the computing device to display a first set of query
11 criteria within the visual query definition, and display a second set of query
12 criteria within a second visual query definition such that the visual query
13 definition includes the first set of query criteria and the second set of query
14 criteria.

15
16 **58. (previously presented)** One or more computer readable storage
17 media as recited in claim 50, further comprising computer executable instructions
18 that, when executed, direct the computing device to generate an audible indication
19 corresponding to an update of the query result displayed within the visual query
20 definition.
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